

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A method for operating multiple overlapping wireless local area subnetworks, the method comprising:

providing a plurality of RF ports;

separately housing ~~providing~~ a common cell controller ~~from coupled to~~ the plurality of RF ports, wherein the common cell controller in conjunction with each RF port provides wireless medium access to ~~all of the~~ wireless local area subnetworks for mobile units in a designated area associated with the RF port in accordance with a wireless communication standard protocol having higher and lower medium access control (MAC) functions, wherein ~~each RF port is configured to perform low level medium access control (MAC) functions and~~ the cell controller is configured to perform the higher level MAC functions for the ~~coupled~~ plurality of RF ports;

using the cell controller to provide multiple service set identifications through each RF port, wherein each service set identification is associated with a corresponding wireless subnetwork;

wherein said RF ports operate ~~are operated~~ to perform the lower level MAC functions and to relay signals received from mobile units to said cell controller and to relay signals received from said cell controller to said mobile units,

and wherein said cell controller operates ~~is operated~~ to control association of said mobile units with said RF port, including sending and receiving association signals between said RF port and said the cell controller, said association of said mobile units utilizing at least two of the wireless local area subnetworks occupying common physical space.

2. (Currently Amended) A method for operating [[a]]multiple wireless local area networks as specified in Claim 1, wherein signals are sent~~[[,]]~~ between said RF port and said cell controller using a ~~first data communication protocol~~ other than the wireless communication standard protocol, and wherein said signals are sent between said RF ports and said mobile units using the wireless communication standard protocol~~a second data protocol~~, and wherein said signals between said RF port and said cell controller~~[[s]]~~ comprise data packets using said ~~first data communication~~ protocol encapsulating data packets using the wireless communication standard protocol~~said second data protocol~~.

3. (Currently Amended) A method for operating [[a]]multiple wireless local area networks as specified in Claim 2 wherein said ~~first communication~~ protocol is an Ethernet protocol.

4. (Currently Amended) A method for operating [[a]]multiple wireless local area networks as specified in Claim 3 wherein said wireless communication standard protocol ~~second protocol~~ is an IEEE ~~standard~~ 802.11 standard protocol.

5. (Currently Amended) A method for operating [[a]]multiple wireless local area networks as specified in Claim ~~[[4]]~~1 wherein said at least two of the wireless local areas subnetworks comprise a subnetwork for public use and a subnetwork for secure use.

6. (Currently Amended) A method for operating [[a]]multiple wireless local area networks as specified in Claim 5 wherein upon activation of said subnetwork for secure use, suspending service on said subnetwork for public use.

7. (Currently Amended) The method of claim 1 wherein the RF port includes a radio module, a digital processor, random access memory and read-only memory, the method further comprising:

storing a bootloader program in said read-only memory[[,]];

operating said digital processor to download instructions from a computer to said random access memory using said bootloader program[[,]]; and

operating said RF port under said downloaded instructions to send and receive messages over the at least two of the overlapping wireless local area subnetworks ~~occupying common physical space~~ using said radio module.

8. (Original) A method as specified in Claim 7, wherein said step of operating said RF port comprises receiving messages from said computer including protocol message portions for RF message transmission, and transmitting said message including said protocol message portions as an RF signal.

9. (Original) A method as specified in Claim 8, wherein said step of operating said RF port comprises receiving RF messages having an RF protocol and sending said RF messages to said computer as data signals encapsulated in a further message protocol.

10. (Original) A method as specified in Claim 9 further comprising interpreting said RF protocol using said downloaded instructions and sending said RF messages to said computer only if said RF messages include an identification of said RF port.

11. (Original) A method as specified in Claim 7 wherein said downloaded instructions configure said computer and said RF port to operate as an access point for communication with mobile units.

12. (Original) A method as specified in Claim 7 wherein said computer is operated to control association of said mobile units.

13. (Original) A method as specified in Claim 7 wherein said downloaded instructions configure said computer and said RF port to operate as a mobile unit for communications with access points.

14. (Currently Amended) A method as specified in Claim 7 wherein said downloaded instructions configure said computer and said RF port to operate as either an access point or a mobile unit under control instructions ~~from~~ from said computer.

15. (Currently Amended) A method for transmitting signals having a wireless signal format using an RF port, the RF port having an Ethernet interface whereby the RF port is coupled to a wired network, and having a data processor and an RF module, wherein the RF port is configured to perform low level MAC functions of a wireless communication standard protocol, and wherein the wired network comprises at least one of a physical entity and a logical entity housed separately from said RF port to perform high level MAC functions of the wireless communication standard protocol, the method comprising:

providing an Ethernet data packet formatted according to the high level MAC functions over the wired network to said Ethernet interface, said Ethernet data packet encapsulating as data a data message having said wireless signal format according to the high level MAC functions on said wired network;

operating said data processor to provide said data message to said RF module;

operating said RF module to transmit said data message as an RF signal to a mobile unit;

and

operating said RF module to transmit said data message as an RF signal over at least two wireless local area subnetworks occupying common physical space.

16. (Previously Presented) A method as specified in Claim 15 further comprising operating said data processor to perform a cyclic redundancy computation on said data message and adding the result thereof to said data message.

17. (Previously Presented) A method as specified in Claim 15 further comprising operating said data processor to control said radio module.

18. (Currently Amended) A method for receiving signals having a wireless signal format including wireless address data and message data at an RF port, the RF port having a wired network interface whereby the RF port is separately housed from a wired network and coupled to ~~[[a]]~~the wired network, and having a data processor and an RF module, wherein the RF port is configured to perform low level MAC functions of a wireless communication standard protocol and the wired network is configured to perform high level MAC functions of the wireless communication standard protocol, the method comprising:

operating said RF module to receive RF signals from at least two wireless local area subnetworks occupying common physical space having said wireless signal format;

operating said data processor to receive wireless data signals from said RF module and provide data signals to said wired network interface comprising a data packet having a source address corresponding to said RF port formatted according to high level MAC functions on said wired network, said data packet including said wireless address data and said message data.

19. (Currently Amended) A method for receiving RF message signals having a wireless signal format including an address data format and message data using an RF port, the RF port having an Ethernet interface whereby the RF port is separately housed from a wired network and coupled to [[a]]the wired network, and having a data processor and an RF module, wherein the RF port is configured to perform low level MAC functions of a wireless communication standard protocol and the wired network is configured to perform high level MAC functions of the wireless communication standard protocol, the method comprising:

receiving said RF message signals in said RF module from at least two wireless local area subnetworks occupying physical space;

providing said signals as data signals to said data processor;

operating said data processor to interpret address data in said data signals; and,

in dependence on said address data, encapsulating said message data and address data in an Ethernet packet and providing said Ethernet packet to said Ethernet interface for transmission on said wired network according to high level MAC functions.

20. (Previously Presented) A method as specified in Claim 19 wherein said data processor is operated to encapsulate said address data in said Ethernet packet.

21. (Previously Presented) A method as specified in Claim 19 wherein said data processor is further operated to perform a cyclic redundancy computation on said message data and to compare the result thereof with corresponding data received in said data signals.

22. (Previously Presented) A method as specified in Claim 19, further comprising operating said data processor to control said radio module.

23. (Currently Amended) A simplified wireless local area network system, comprising:

a computer having a data processor and a memory;

a plurality of RF ports separately housed from said computer, each RF port having an RF port data processor, an RF module and a data communications interface coupled to said computer;

a first program in said memory of said computer for operating said computer data processor to perform high level MAC functions of a wireless communication standard protocol for said plurality of RF ports, said functions including association with mobile units via at least two wireless local area subnetworks occupying common physical space; and

a second program for operating said RF port data processor to perform low level MAC functions of the wireless communication standard protocol.

24. (Previously Presented) A system as specified in Claim 23 wherein said second program operates said RF port data processor to perform second wireless data communication functions, including control of said RF module.

25. (Previously Presented) A system as specified in Claim 23 wherein said second program operates said RF port data processor to perform second wireless data communications functions, including cyclic redundancy check functions.

26. (Previously Presented) A system as specified in Claim 23 wherein said second program is stored in said computer memory and wherein said RF port data processor is arranged to download said second program.

27. (Currently Amended) A wireless access device for providing wireless access to a communication system, comprising:

a modem for sending and receiving data messages between said communications system; and

an RF port separately housed from said communications system, the RF port comprising:

a data interface coupled said modem, a data processor and an RF module, said data processor being programmed to:

receive data messages from said modem[[,]];

~~to~~ format said messages for wireless data communications;

~~and to~~ provide said formatted messages to said RF module for transmission by RF data signals to at least one mobile unit via at least two wireless local area subnetworks occupying common physical space[[,]];

~~and to~~ receive RF data signals from said at least one mobile unit via at least two wireless local area subnetworks occupying common physical space[[,]];

and

~~and to~~ provide data messages to said modem to be sent on said communications system,

wherein said RF port performs low level MAC functions of a wireless communication standard protocol and said communication system performs high level MAC functions of the wireless communication standard protocol.

28. (Previously Presented) A wireless access device as specified in Claim 27 wherein said communications system is a DSL communication system connected to the Internet, and wherein said modem comprises a DSL modem.

29. (Previously Presented) A wireless access device as specified in Claim 27 wherein said communication system is a two-way cable communication system connected to the Internet, and wherein said modem comprises a cable modem.

30. (Previously Presented) A wireless access device as specified in Claim 28 wherein said communication system comprises a fiber optic system, and wherein said modem comprises a fiber optical modem.

31. (Currently Amended) A method for providing wireless access to the Internet, comprising:

coupling a cell controller to the Internet;

~~providing coupling a~~ data communications interface of a modem coupled to the Internet
~~and having a data communications interface;~~

separately housing said cell controller from an RF port;

~~connected~~ coupling to an the RF port to the data communications interface;

configuring said RF port for wireless data communication to a mobile unit having a predetermined wireless communications address[[]]; and

providing at least one mobile unit configured with said predetermined wireless communications address for conducting RF data communications with said RF port via at least two wire less local area subnetworks occupying common physical space, said RF port being arranged to relay communications between said mobile unit and said modem,

wherein said RF port performs low level MAC functions of a wireless communication standard protocol and said ~~cell controller~~Internet performs high level MAC functions of the wireless communication standard protocol.

32. (Previously Presented) The method specified in Claim 31 wherein said step of providing said mobile unit, comprises providing a computer having an RF port.

33. (Currently Amended) A System for providing wireless data communications between mobile units and a wired network operating according to a wireless data communications standard protocol having high level MAC functions including association and roaming functions, comprising:

at least one RF port configured to performing lower level MAC functions of the wireless data communications standard protocol, said at least one RF port having an RF module for sending and receiving data messages to said at least one mobile unit using capable of operating via at least two wireless local area subnetworks occupying common physical space, having a wired interface for sending and receiving data messages to and from said wired network using a wired communications protocol, and a programmed processor for relaying data messages received by said RF module using said wired communications protocol; and

at least one cell controller separately housed from said at least one RF port for sending data messages to said wired interface of said RF port and for receiving data messages from said RF port wherein said cell controller performs said high level MAC functions of the wireless data communications standard protocol.

34. (Previously Presented) A system as specified in claim 33, wherein there are provided a plurality of said RF ports, and wherein said cell controller is arranged to address said data messages to said RF ports using said wired communication protocol.

35. (Previously Presented) A system as specified in claim 33 wherein said at least one mobile unit is associated with one of said RF ports, and wherein said processor is programmed to interpret source address data received in said RF communications protocol and for relaying a received message using said wired communications protocol only if said source address data corresponds.

36. (Previously Presented) A system as specified in claim 33 wherein said cell controller is arranged to provide messages to said RF port comprising mobile unit address data and message data encapsulated in data packet following said wired communication protocol.

37. (Previously Presented) A system as specified in claim 36 wherein said cell controller is arranged to provide said mobile unit address data and said message data in said RF communications protocol encapsulated in said wired communication format.

38. (Previously Presented) A system as specified in claim 33 wherein said RF port is arranged to encapsulate messages received by said RF module in a data packet using said wired communication protocol.

39. (Previously Presented) The method of claim 1 wherein the cell controller provides extended service set identifiers (ESS).

40. (Previously Presented) The method of claim 1 wherein the cell controller provides basic service set identifiers (BSS).

41. (Previously Presented) The method of claim 1 wherein the RF port allocates data bandwidth amongst the service set identifications base on commands from cell controller.

42. (Previously Presented) The method of claim 1 wherein the RF port generates an 802.11 beacon for each service set identifier.

43. (Previously Presented) The method of claim 1 wherein the cell controller determines which one of the multiple overlapping wireless local area subnetworks a mobile unit communicating through an RF port is operating on.

44. (Previously Presented) The method of claim 1 wherein the cell controller verifies levels of security provided in connection with access by mobile units to the multiple overlapping wireless local area subnetworks.

45. (Previously Presented) The method of claim 1 wherein the cell controller prioritizes communications through the multiple overlapping wireless local area subnetworks.